



Oil and Gas Permit Application

ACM Highoint Well Site

Letter of Introduction

Aurora Development

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Introduction and Project Summary

Axis Exploration, LLC (Axis) submits this application for an Oil and Gas Permit (OGP) concerning the CAM Highpoint oil and gas location, or “Well Site” in accordance with the Operator agreement between Axis and the City of Aurora (the “City”). The application seeks to permit the drilling, completing, and installation of related surface production equipment for one (1) Well Site, one (1) permanent access road, one (1) temporary access road, and up to thirty-two (32) horizontal wells on property located in Aurora, Colorado for the ACM Highpoint Well Site. The drilling schedule is subject to change due to economic conditions, business development priorities, and contract availability.

The ACM Highpoint Well Site will have wells and production facilities permanently located on the Well Site. Well Site and “Well Pad” are used interchangeably in this application and generally refer to the “Well Site” as defined in the Operator Agreement. The wells and associated production facilities under this application are being proposed on a single site in the northeast quarter of Section 2, Township 3 South, Range 66 West of the 6th P.M. The horizontal drilling technique eliminates the need to develop additional Well Sites, thus reducing the overall footprint needed on the surface if otherwise developed with vertical and/or directional wells. This well pad and the subsequent 32 wells are currently planned to produce from two approximately 1280-acre Drilling and Spacing units each in the Niobrara and Codell formations of the Denver-Julesburg (DJ) Basin. As the subsurface permits are not yet approved, the spacing unit and specific wellbore details may change through the state permitting process but should not impact this local siting permit.

This permit application, pursuant to Section 146-1207 of the Aurora Land Development Code and the Aurora and Axis Oil and Gas Operator Agreement, includes a full description of the site preparation, drilling, completion, production, maintenance and final abandonment processes.

Operations Summary

The ACM Highpoint Pad site operations are divided into site construction, drilling, completions, production and final abandonment. During the construction phase, the site will be graded and plated with road base. Topsoil will be segregated and reserved for reclamation. After construction, the drilling rig will be moved in and begin drilling the wells. Each well typically takes 4-10 days to drill. Completion operations (frac'ing) will take place after the wells have been drilled, steel casing installed and cemented. Completion equipment will mobilize to the site and frac each well, typically 1-2 days. After completions, the wellheads will be installed, tankless facilities constructed, and the wells will be turned on to production. All produced fluids will be transport off site via pipeline, including oil, gas and produced water. After the wells are online the site will undergo interim reclamation reducing the pad size to the final area of disturbance. During interim reclamation, landscaping and fencing around equipment will be installed. Once

the production from the wells has concluded, typically 20-30 years, the wells will be plugged and abandoned per COGCC requirements, all facility equipment removed, and graded back to original conditions. The former pad area will be reseeded with an appropriate mix as dictated by the surface owner. The site will then be returned to the surface owner.

All operations will be consistent with Aurora City Code, the Aurora and Axis Operator Agreement, and the Colorado Oil and Gas Conservation Commission (COGCC) rules and regulations. The specifics of each phase are fully described in the Operations Plan submitted as a part of this application.

Neighborhood Meeting Schedule

A neighborhood meeting for the ACM Highpoint site is tentatively scheduled for the end of February for all property owners within one mile from the edge of the proposed pad location. City planning staff will also be invited to the meeting. The neighborhood meeting will follow an open house 'science fair' format, with each oil and gas discipline, health and safety, environmental impact, planning, engineering and mineral royalties. Comments and questions from the meeting will be recorded and relevant comments will be incorporated into permit plan edits.

Signage

Axis will post and maintain all signage pursuant to City Code and COGCC Rules.

Sanitary Facilities

Axis personnel and contractors will utilize portable sanitary toilets and wash stations. Since there are no personnel on the location continuously during the long-term production phase, no city services or permanent sanitary services of any kind are required (other than the possible use of municipal water for landscaping). All personnel and contractors who visit the site are responsible for picking up and disposing of any debris.

Public Utilities

Axis is planning to utilize high line power for electricity at the well site, and may also utilize Aurora water, if available, for permanent landscaping or other project uses. No other utilities are planned for the site.

Airport Height Overlay

The well site lies approximately 7,700 feet (1.5 miles) south of the existing Runway 7/25 at Denver International Airport and 1,700 feet (0.3 miles) from the proposed Runway 7R/25L. Axis has no plans to utilize temporary equipment that will meet or exceed 200 feet in height. No permanent

equipment will exceed 30 feet in height. Axis will notice the FAA 90 days prior to construction and will abide by all FAA lighting, radio frequency use, noticing, and height requirements.

Mitigation Measures and Best Management Practices Addressed

The City of Aurora and Axis have agreed to 54 Best Management Practices (BMP's), fully described in Exhibit B of the Operator Agreement. The following table lists the OGP Plans and applicable BMP's for this site and that meet or exceed the BMP requirements.

OGP Plan	BMP's Addressed
Site Plan	2, 3, 4, 6, 9, 10, 14, 18, 21, 22, 28, 30, 32, 41, 42, 43, 44
Air Quality Plan	4, 6, 7, 13, 14, 16, 17, 20, 38
Fugitive Dust Suppression Plan	13, 29, 30
Emergency Response Plan	8, 15, 19, 39, 40, 42, 43, 47
Fluid Disposal Plan	4, 8, 33, 36, 40
Groundwater Monitoring Plan	49
PHA-HAZOP Letter	15, 47
Interim Reclamation Plan	21, 30, 41
Landscape Plan	21, 30, 41
Lighting Plan	22
Noise Management Plan	2, 3, 14, 18, 25
Operations Plan	2, 3, 4, 5, 6, 8, 14, 15, 16, 17, 18, 21, 23, 24, 25, 26, 27, 28, 29, 30, 32, 33, 34, 35, 37, 38, 41, 45, 47, 48, 49, 52, 53
Traffic Letter / Plan	4, 24, 29, 30, 31
Visual Mitigation Plan	3, 9, 10, 18, 22, 25
Weed Control Plan	21, 30, 35, 41
Wildlife Impact Mitigation Plan	52
Water Delivery Agreement / Water Use Plan	4, 34, 36
Storm Water Management Plan	8, 12, 13, 23, 24, 39, 40,

Each OGP Plan provides detail on compliance for the Operator Agreement BMP's, COGCC Rules, and CDPHE Rules.

BMP's not applicable to this location are not addressed in this application.

BMP Summary

The following BMP summaries describe generally OGP Plans and the BMP addressed. Additional detail is fully explained in the individual OGP Plans.

Site Plan

The Site Plan contains compliance elements for multiple BMP's, showing location of the pad, location of wells, equipment to be used, placement of mitigation barriers, construction detail, haul route, access roads, etc. All OGP Plans are drafted using the information in the Site Plan.

Air Quality Plan

All applicable COGCC regulations related to odor as well as BMP 38 of the Operator Agreement will be adhered to by the Operator. No noxious, prolonged or unusually high amounts of odor are expected from the proposed drilling of the wells. Operations will be conducted in such a manner as to not create a nuisance or hazard to the public. Odor issues will be resolved as soon as possible, odor complaints from the public will be resolved within 24 hours of receipt of the complaint.

Fugitive Dust Suppression Plan

The fugitive dust suppression plan addresses BMP's 13, 29, and 30. All efforts will be made to minimize dust during all phases of operation. Dust mitigation measures will include watering the road, regular road maintenance, and additional engineering controls described in the plan. The access road will be bladed to minimize wet weather damage. No chemical treatment will be applied to the roads will occur without prior approval by the City.

Emergency Response Plan

The Emergency Response Plan (ERP) or Emergency Action Plan (EAP) describes all the measures taken in the event of an emergency on site. The EAP addresses BMP's 8, 15, 39, 40, 42, 43, and 47 and is drafted specifically for the ACM Highpoint Pad. The EAP is a living document, subject to change over time and in conjunction and collaboration with the City and Aurora Fire Rescue.

Fluid Disposal Plan

The Fluid Disposal Plan is utilized in conjunction with Axis' Waste Management Plan for the ACM Highpoint Site. The Fluid Disposal Plan addresses BMP's 4, 8, 33, 36, and 40. All fluids, including produced water, will be disposed of at an approved licensed facility. Stormwater accumulations within secondary containment will be documented and disposed of in compliance with EPA Spill Prevention Control Countermeasures (SPCC) regulations. Axis' Waste Management Plan is included as a supplement to the Fluid Disposal Plan.

Groundwater Monitoring Plan

The Groundwater Monitoring Plan details Axis' plans to sample groundwater in accordance with BMP 49. The Groundwater Monitoring Plan shows which water wells are within a half mile of

the ACM Highpoint Pad and the producing aquifer. There are no available water sampling locations within a half mile radius, therefore Axis will drill and install monitoring wells capable of sampling each of the aquifers, Laramie Fox Hills, Denver, and Arapahoe. This monitoring plan has been incorporated into Axis' Sampling and Analysis Plan (SAP). The SAP will be provided upon request from the City.

Interim Reclamation Plan

The Interim Reclamation Plan describes the reduction in pad size and reseeding efforts to comply with COGCC Rules and BMP's 21, 30, and 41. The interim reclamation area is shown on the Site Plan, along with a sheet showing the proposed landscaping that will be utilized as part of the interim reclamation.

Landscape Plan

The Landscape Plan was developed in accordance with Aurora City Code and the requirements of BMP's 21, 30, and 41. Sheets 13 and 14 of the Site Plan show the proposed landscaping locations, plant species, vegetation density, and planting notes. Landscaping will be installed after interim reclamation has occurred or as soon as new development occurs within 1500' of the site. Aurora water will be utilized to maintain the landscaping.

Lighting Plan

The Lighting Plan describes the facility lighting for the site in compliance with BMP 22. This plan includes lighting detail prepared by a third party and shows the proposed permanent lighting at the ACM Highpoint Pad. Temporary lighting will be on site for the drilling, completions phases of the project. The ACM Highpoint Pad will have permanent lights for safety and general maintenance, emergencies and other pertinent operations that require light for execution. All permanent lighting of the ACM Highpoint Pad shall be directed downward or shielded. Temporary lighting will conform to the COGCC's Rules.

Noise Management Plan

The Noise Management Plan describes the baseline noise levels and proposed noise mitigation measures to ensure compliance with COGCC Rules and BMP's 2, 3, 14, 18, and 25. The noise study and the mitigation plans were prepared by a third party and are specific to the ACM Highpoint Pad. The ACM Highpoint pad will have approximately 740' of 32' high soundwalls on the southwest corner of the site to mitigate any potential noise impacts to the residents approximately 4000' southwest of the location.

Operations Plan

The Operations Plan details each step of the construction, drilling, completions and production phases. This plan is based on nearly every BMP in the Operator Agreement including the use of pipelines, mitigation measures, air quality, electrification of equipment, and many others.

PHA-HAZOP Letter

A preliminary PHA-HAZOP letter for typical tankless facility designs will be provided to the City as part of the OGP application. The PHA-HAZOP analysis will be based upon the site layout and proposed facility design. PHA-HAZOP analysis has been conducted by a third party and all recommendations will be incorporated into the facility design and emergency response plans. A revised PHA-HAZOP letter will be supplied if there are major changes to design prior to construction. Emergency response and site plans will be updated to reflect any design change.

Road Maintenance Agreement

A draft Road Maintenance Agreement is attached with this submittal. Axis is currently in process with the City's Attorney's Office on approval of a Road Maintenance Agreement for the ACM Highpoint Pad. This Agreement will cover the portions of East 64th Avenue and East 56th Avenue that will be used for construction and haul route access. A final approved copy of the Road Maintenance Agreement will be provided to the City upon approval by the Attorney's Office. No construction, drilling or completions phase activities will begin prior to the Road Maintenance Agreement approval.

Traffic Letter / Plan

Axis has contracted a third-party to prepare a traffic memo documenting current traffic conditions and a traffic management plan detailing specific site traffic details, including vehicle weight loads, access routes and traffic volumes. This Traffic Plan was developed in accordance with BMP's 4, 24, 29, 30, and 31.

Axis will maintain all access roads in compliance with City Code. All access roads leading to the well site will be designated and maintained to support fire vehicles, equipment and apparatus.

Visual Mitigation Plan

The Visual Mitigation Plan provides information on all visual mitigation measures employed at the site in accordance with BMP's 3, 9, 10, 18, 22, and 25. These mitigation measures include temporary soundwalls serving as visual mitigation, fencing, interim reclamation, and landscaping. A third party has prepared visual renderings of the site during each phase of the project from multiple viewpoints around the site. These renderings are provided as part of the visual mitigation plan.

Weed Control Plan

The Weed Control Plan addresses BMP's 21, 30, 35, and 41. All areas, including well heads and production facilities, will be kept free of weeds, rubbish, and other waste material. Visual site inspection for weeds, rubbish and general site conditions will be conducted multiple times per week. If noxious weeds are identified on-site, the area will be treated as soon as possible by a combination of mowing and chemical herbicide treatment. The Weed Control Plan identifies the specific chemicals and locations which they may be applied.

Wildlife Mitigation Plan

The Wildlife Mitigation Plan was drafted for the ACM Highpoint Pad, however no mitigation is required as it is not located within United States Fish and Wildlife Service (USFWS) and Colorado Parks and Wildlife (CPW) mapped layers for sensitive species. The pad is outside of the FEMA mapped flood plain area and outside of City Open Space. An Initial Site Assessment (ISA) was conducted in the field by a third-party consultant and completed on May 18, 2018. The summary of ISA and the ISA report are provided as part of this submittal in accordance with BMP 52.

Water Delivery Agreement / Water Use Plan

The Water Use Plan has been developed in compliance with the Water Delivery Agreement and BMP's 4, 34, and 36. Raw water for the ACM Highpoint Pad will be sourced from the Initial Delivery Point near Powhaton and 6th Avenue. Raw water will then be transported via lay-flat lines to Modular Large Volume Tanks (MLVT's) used as temporary water storage on pad. Water storage ponds may be permitted and constructed if storage capacity is not sufficient on the pad. Plan specifics, including proposed lay-flat pipeline route are detailed in the Water Use Plan.

Stormwater Management Plan

The Stormwater Management Plan was developed using the City's stormwater plan template and Axis' CDPHE Stormwater Permit. Proper stormwater controls will be installed around the tank battery and drilling pad during construction. A preliminary drainage letter will be provided, and no changes in the current drainage patterns are anticipated.

The Stormwater Plan will be provided with the second submittal to the City after the drainage letter has been approved.

Contact Information

Axis' Emergency Response Line (24-hr)

720-370-5540

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